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The FOMC in 1996: "Watchful Waiting"

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In the minutes of its December 17, 1996 meeting, the Federal Open Market Committee (FOMC) described its policy stance as one of "watchful waiting." In the second half of that year, especially, the FOMC stood poised to counter the emergence of any inflationary imbalances that would threaten the ongoing economic expansion. No policy tightening was actually implemented in 1996, so the only action was a slight policy ease on January 31 in response to concerns about a slowing economy. In this article, we analyze the FOMC's 1996 policy stance and argue that the Committee's immediate objective was to maximize the horizon for which a healthy economic expansion would be expected to continue. For its part, the FOMC has indicated that the prevention of any upward creep in inflation is vital to the continued health of the expansion, but that near-term decreases in the trend rate of inflation are not. Support for this interpretation is found in published summaries of the 1996 FOMC meetings and public statements by Committee members.

We also describe widely-discussed pieces of research that figured in the 1996 monetary policy debate.¹ On balance, we conclude that the most influential academic research lent the FOMC caution in considering the immediate implementation of actions aimed at realizing its long-run goal of price stability. Moreover, even if FOMC members are skeptical of the validity of a given study's policy implications, they must

consider that study's impact on opinion in broader policy circles. We begin this article with a positive description of the FOMC's actions in 1996 vis-a-vis two estimates of the policy-implied inflation rate. We then discuss the implications of several pieces of recent academic research and their impact on the monetary policy debate.

IMPLICIT INFLATION TARGETS: AN EMPIRICAL SUMMARY OF FOMC POLICY

FOMC policy actions are often summarized by the Committee's adjustments to the federal funds rate—the interest rate paid on interbank loans. Although the Federal Reserve has no formal inflation target, two instrument rules for the federal funds rate—the Taylor (1993) rule and the Dueker and Fischer (1996) inflation-targeting model—allow one to infer inflation objectives that are embedded in past and present policy actions. Used this way, these instrument rules help to elucidate the FOMC's implied inflation tolerances during the period of watchful waiting in 1996.

The Taylor (1993) rule specifies a long-run inflation objective, but no date by which the objective should be attained, because the rule is designed to allow monetary policy to respond to both inflation and output gaps. Monetary policy attempts to reduce inflation or close a positive gap between actual and potential output by raising the real fed funds rate, relative to the equilibrium real rate (assumed by Taylor to be 2 percent); conversely, it lowers the real fed funds rate to raise inflation or stimulate real output. In symbols, the Taylor rule sets the funds rate according to this formula:

$$R_t = \pi_{t-1} + 2.3 + (\pi_{t-1} - \pi^*) + (y_{t-1} - y_{t-1}^p),$$

¹ By monetary policy "debate," we are referring to a broad public forum that includes business economists and academics, in addition to Federal Reserve policymakers.

Figure 1

Target Federal Funds Rate Implied by Taylor's Rule for Long-Run Inflation of 2.0, 3.0, and 4.0 Percent

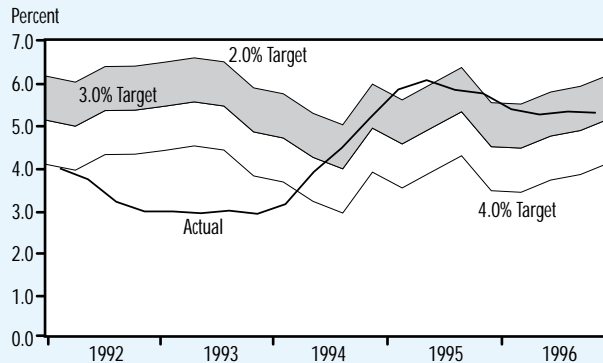
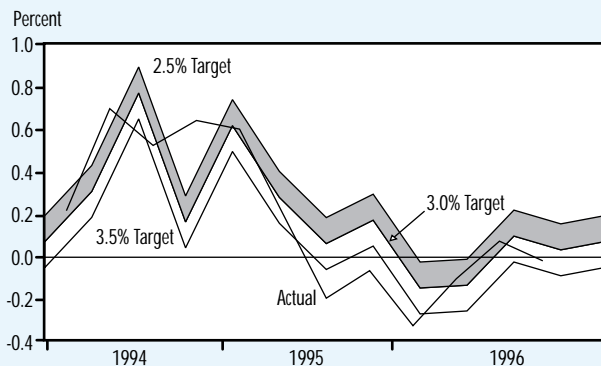


Figure 2

Changes in Federal Funds Rate and Changes Implied by One-Year-Ahead Inflation Targets of 2.5, 3.0, and 3.5 Percent



where R is the fed funds rate, π is inflation, π^* is the long-run target rate of inflation, y is the logarithm of GDP, and y^p is the logarithm of potential GDP, which is estimated separately.²

Figure 1 plots the federal funds rate together with the implied rate from Taylor's rule for long-run inflation targets of 2.0 percent, 3.0 percent, and 4.0 percent.³ It shows that FOMC rate settings in 1992-1993 deviated sharply from the Taylor rule. The federal funds rate in this period dipped below the level implied by even the 4 percent long-run inflation target. Increases in

the funds rate in 1994 and early 1995, however, brought policy into line with a Taylor rule setting with a 2 percent inflation target. To maintain consistency with the 2 percent target, the funds rate would have needed to increase by about 100 basis points from mid-1995 to the end of 1996, whereas it actually declined by about 75 basis points. At the end of 1996, the funds rate was consistent with a Taylor-rule inflation target of slightly less than 3 percent.

A complementary view of FOMC policy settings comes from the inflation-targeting model of Dueker and Fischer (1996), in which policy is aimed at a one-year-ahead inflation target with no feedback from output gaps. In contrast to the Taylor rule, our model sets a specific timetable for meeting the inflation target by focusing on this single objective. Another difference is that our model does not impose any assumptions concerning the long-run level of the equilibrium real funds rate, because the monetary authority need not impose prior beliefs about this variable in order to target inflation period by period. The inflation-targeting rule relates changes in the funds rate to the targeted rate of inflation.⁴ Figure 2 plots the changes in the funds rate from the first quarter of 1994 to the end of 1996 against the changes implied by one-year-ahead inflation targets of 2.5 percent, 3.0 percent and 3.5 percent. The chart shows the change in the funds rate that would aim to achieve the target rate of inflation one year hence. The actual funds rate changes in Figure 2 indicate that the seven increases in the target funds rate from the first quarter of 1994 to the first quarter of 1995 were consistent with inflation targets near 2.5 percent, on average. Later in 1995, however, some backsliding ensued, pushing the implicit inflation target above 3.5 percent. An essentially constant funds rate after the first quarter of 1996 was roughly consistent with a 3.0 percent inflation target, according to the indicator rule.

Both the Taylor rule and the inflation-targeting model concur that if the FOMC's inflation target was unambiguously below

² Taylor's (1993) formula has coefficients of one-half on the inflation and output gaps and thus implies smaller differences in policy in the short run for alternative long-run inflation targets.

³ The potential output series used in the calculations comes from the Congressional Budget Office.

3 percent, the funds rate ought to have increased in the second half of 1996 (CPI inflation for 1996 turned out to be 3.2 percent). The FOMC, however, indicated at the outset that it did not intend in 1996 to push inflation decisively below its 3 percent trend:

The [FOMC] members anticipated that inflation would remain contained in 1996, but they did not expect significant progress toward more stable prices (Minutes, FOMC meeting, January 30-31, 1996).

For the purposes of this article, we define watchful waiting as a policy mode in which policymakers (and probably financial markets) know the direction of the next sustained series of policy moves, but immediate action is not considered necessary. Policies ought to be categorized as 'neutral' or 'non-neutral' relative to some objective. For this reason, a policy of watchful waiting is not necessarily neutral with respect to all ascribable policy objectives. Figures 1 and 2 suggest that policy in 1996 was, on average, slightly accommodative relative to an inflation target between 2 percent and 3 percent.

With this background, we examine FOMC policy statements in light of a spate of research results unveiled during 1996 that tended to bolster arguments against an immediate policy push toward price stability. In particular, we look at the policy implications of recent research on duration dependence in economic expansions, downward wage rigidities, time variation in the natural rate of unemployment, bias in the consumer price index, and the opportunistic approach to disinflation. We point to instances where current research on these topics might have influenced the terms of monetary policy discussions and thought in 1996.

DURATION DEPENDENCE IN EXPANSIONS

By the middle of 1996, it was clear that the U.S. economy was displaying a combina-

tion of continued robust growth, low unemployment, and relatively stable inflation that is rarely enjoyed by the sixth year of an economic expansion. Looking ahead, many observers warned that all roads led downhill, that economic conditions were too good to last. Yet the view that it was 'time' for the economy to come down from its Olympic-year pinnacle did not reflect current empirical evidence that economic expansions do not invariably wither as they age (Kim and Nelson, 1995; Durland and McCurdy, 1994; Diebold, Rudebusch, and Sichel, 1993). That is, the likelihood that an economic expansion will give way to a recession does not appear to increase systematically with the age of the expansion. This lack of duration dependence in economic expansions does not mean that the business cycle can be repealed; instead, it implies that each recession arises from idiosyncratic shocks and particular structural imbalances in the economy, rather than from an expansion that simply 'runs out of steam.' As Tolstoy said, "All unhappy families are unique in their unhappiness." Recent economic research suggests that although recessions, like the existence of unhappy families, may be inevitable, they all have unique origins.

FOMC policymakers appear to agree with the conclusions from academic research that do not find duration dependence in expansions, as Chairman of the Board of Governors Alan Greenspan indicated in Congressional testimony on February 26, 1997:

There is no evidence, however, that the business cycle has been repealed. Another recession will doubtless occur some day owing to circumstances that could not be, or at least were not, perceived by policymakers and financial participants alike.

This statement makes clear that recessions do not occur simply because too much time has passed since the last one. Chairman Greenspan explicitly echoed such thinking in Congressional testimony on February 20, 1996:

⁴ The inflation-targeting rule uses a heteroscedastic time-varying parameter model outlined in Dueker and Fischer (1996) to forecast the change in the funds rate that is expected to be consistent with the one-year-ahead inflation target.

Economic expansions, however, do not necessarily die of old age. Although the factors governing each individual business cycle are not always clear, expansions usually end because serious imbalances eventually develop.

By implication, recessions are the product of particular imbalances and shocks that, if recognized and understood at the time, could have been countered by market participants and policymakers. Business cycle analysts have long recognized that overly optimistic sales projections can induce overproduction and a resulting inventory overhang that can lead to business recessions. In his February 20, 1996, Congressional testimony, Chairman Greenspan noted that “asset overhang” is another potential imbalance that threatens healthy economic growth:

Capital expenditures by households and firms can contribute significantly to the development of cycle-ending imbalances. The levels of stocks of such real assets have effects on output very similar to those of business inventories. . . . The dynamics of expanding output and rising profit expectations often create a degree of exuberance, which, as in much of human nature, tends on occasion to excess— in this case, in the form of a temporary overaccumulation of assets. The ensuing correction in demand for such assets can significantly mute growth for a time or even cause a downturn if the imbalances are large enough.

It is interesting to note that this statement clearly presages Chairman Greenspan’s widely-publicized utterances on December 5, 1996, about the potential for “irrational exuberance” in the stock market. The danger articulated by Chairman Greenspan is that investors, emboldened by high current profits and incomes, will allocate resources to marginal investment projects and capital goods that may not

yield satisfactory returns in the future. To hedge against the risk of low future returns and help insure their future consumption possibilities, investors in speculative projects ought to insist upon commensurate risk premiums. One concern Chairman Greenspan expressed in Congressional testimony, however, is that “risk premiums for advancing funds to businesses in virtually all financial markets have declined to near-record lows” (1997 Monetary Policy Objectives, p. 8). Disappointing outcomes from speculative investments threaten to reduce people’s future purchasing power and the level of economic activity in general. An example from the 1980s is the extreme overinvestment in commercial real estate—“strip malls”—that depressed the market and took years to unwind.

Monetary policymakers suggest that many economic imbalances that can lead to recessions are less likely to develop if inflation is controlled:

The FOMC has recognized the need to remain vigilant for signs of potentially inflationary imbalances that might, if not corrected promptly, undermine our economic expansion. . . . The FOMC has to be sensitive to indications of even slowly building imbalances, whatever their source, that, by fostering the emergence of inflation pressures, would ultimately threaten healthy economic expansion. (Monetary Policy Testimony and Report to Congress, February 26, 1997.)

To foster sustainable economic growth, one overriding imperative for monetary policymakers in this expansion has been to avoid what one economic journalist describes as

. . . the giant error the Japanese economy made during the “bubble years” of the 1980s. Then, powered by extraordinarily cheap capital, Japanese companies in a range of industries rushed into deals founded on no real business logic. [These

deals] were probably doomed from the outset, and it is not surprising they have come painfully unstuck.⁵

The weak performance of the Japanese economy in the 1990s attests to the cost of undoing severe economic imbalances. The U.S. economy, to a lesser extent than Japan, experienced excessive speculation in the middle to late 1980s. An associated uptick in inflation helped derail the economic expansion that lasted from 1982 to 1990. Now Federal Reserve policymakers appear determined to prevent the emergence of cycle-ending inflationary imbalances in the late 1990s.

In its overall thrust, the current state of knowledge concerning the lack of duration dependence in economic expansions provides monetary policymakers with a strong impetus to conduct preemptive strikes aimed at preventing inflationary imbalances in the economy. It does less, however, to supply a rationale for further disinflation in the near term.

DOWNWARD WAGE RIGIDITIES

Akerlof, Dickens, and Perry (1996) presented a well-publicized article, "The Macroeconomics of Low Inflation," at a conference in March 1996 and garnered a great deal of attention as a voice of caution against a headlong move toward monetary policies aimed at zero inflation. The authors' main claim is that the natural rate of unemployment varies with the inflation rate in a way that makes inflation rates below 3 percent particularly deleterious for the economy. For example, simulations of the Akerlof/Dickens/Perry model suggest that when the economy moves from having a steady-state inflation rate of 6 percent to a 3 percent rate, the natural rate of unemployment increases from 5.8 percent to 5.9 percent, but if inflation decreases from 3 percent to zero percent, the natural rate of unemployment rises from 5.9 percent to 7.6 percent. Such a provocative claim has obliged policymakers to examine the assumptions behind the

study by Akerlof et al. and evaluate the plausibility of their findings.

The chief assumption in the Akerlof/Dickens/Perry model, with accompanying evidence from survey data, is that nominal wages are downwardly rigid out of a sense of "fairness" between workers and employers, except in cases where workers believe the firm's survival is at stake. In this model, a subset of firms in the economy during each period suffers an adverse change in the relative price of the goods the firms produce, and they can only maintain employment at previous levels by reducing labor costs. At low, but positive, inflation rates, real wages can adjust downward among adversely affected firms as needed to maintain employment without nominal wage cuts. At zero inflation, however, such downward adjustments cannot occur in adversely affected firms because of opposition to nominal wage cuts. Therefore, the natural rate of unemployment rises as inflation falls enough to prevent declines in real wages. In this way, the Akerlof/Dickens/Perry model illustrates Tobin's (1972) idea that a little inflation "greases the wheels of the labor market."

Other economists, however, question the extent to which nominal wages would be as downwardly rigid in a world of stable prices, as opposed to the moderate inflation that held throughout the period covering the collection of the survey data used in the Akerlof/Dickens/Perry study. Gordon (1996b) argues that nominal wage cuts rightly seem unfair to workers in view of the fact that nominal compensation per hour has increased by more than 100 percent in two of the past three decades. If prices were stable and nominal compensation were to increase at the same rate as productivity over long time spans, then brief periods of nominal wage cuts in adversely affected industries would likely become more prevalent by mutual agreement between workers and firms. Furthermore, Akerlof et al. assume that wages are the only margin at which firms can adjust worker compensation. However, because most workers view benefits as more tenuous parts of their

⁵ Peter Martin, "Weak link in the chain," *Financial Times*, March 6, 1997, p. 12.

implicit contract with employers, they would probably find increases in employee-paid health insurance premiums and deductibles less objectionable than wage cuts.

Mankiw (1996) finds fault with the extent to which *today's* wage rate determines labor demand and supply in the Akerlof/Dickens/Perry model. He notes that in most cases employees and employers have long-term relationships in which they view today's wage as an installment payment on a long stream of work performed, rather than as an allocative price determining how many people will be employed this period.

In its July 1996 meeting, the FOMC appears to have alluded to the study by Akerlof, Dickens, and Perry in a discussion of the long-run inflation objective. Perhaps in response to this and other research on nominal wage rigidities, the FOMC has decided to monitor the economy carefully for signs of rigidities in labor markets as the inflation rate falls further:

Some [members] also observed that the precise level of average price inflation that might be compatible with the optimal functioning of the economy was an unsettled issue owing, for example, to potential rigidities in labor markets. Thus far, such rigidities had not impeded the economy from functioning at a very high level as inflation came down, and continued adaptation to even lower inflation rates was very likely. However, the Committee would need to pay careful attention to these potential problems as inflation fell further. For now, the members agreed that some additional progress in reducing inflation was very likely to improve the ultimate performance of the economy, and that it was particularly important at this juncture to resist firmly any tendency for inflation to worsen. (Minutes, FOMC meeting, July 2-3, 1996.)

With this discussion, the FOMC indicated that studies such as the one by Akerlof, Dickens and Perry had not

dissuaded it from pursuing price stability as its long-run objective. The Committee agreed, however, to monitor the labor market closely for signs of rigidities as inflation fell further.

TIME-VARYING NAIRU

On repeated occasions in 1996, the FOMC referred to the fact that the increase in wage inflation has been significantly less than most observers would have expected on the basis of historical relationships.⁶ The question in 1996 was, Why is wage inflation not higher, given an unemployment rate well below 6 percent? This level of unemployment had been a consensus estimate of the non-accelerating-inflation rate of unemployment (NAIRU). Mentioned at every FOMC meeting in 1996, worker "insecurity about the permanence of jobs or the availability of alternative jobs" provides an explanation for how the unemployment could *temporarily* dip below the NAIRU without triggering increased wage inflation.⁷ Similarly, the FOMC noted that a structural shift towards managed health care was achieving reductions in the growth of benefits costs, which could prove to be either temporary or long-lasting:

Firms have been making unprecedented efforts to gain better control over the rate of rise in the cost of benefits provided to employees, especially those related to health care. Although some of these efforts may have only a one-time effect on the level of benefit costs, groundwork also seems to have been laid for slower growth of benefits over time. (Monetary Policy Report to Congress, February 20, 1996.)

In the event that the fortuitous circumstances on the inflation front were only temporary,

Some members noted that the Committee would need to anticipate,

⁶ See FOMC Minutes from August 20, 1996, September 24, 1996, and December 17, 1996, and the February 20, 1996, Monetary Policy Report to Congress.

⁷ See the Minutes of the May 21, 1996 FOMC meeting.

and act to preclude, a rise in the core rate of inflation. . . . In this regard, the view was expressed that a firming in policy sooner rather than later was likely to end up promoting stability in output and prices. (Minutes, FOMC meeting, May 21, 1996.)

Proponents of a wait-and-see approach, on the other hand, argued that the NAIRU might have decreased substantially from 6 percent, and the Fed ought to give the economy the opportunity to settle at a lower long-run rate of unemployment. Academic support for this view came from empirical studies by Ball (1996) and Gordon (1996a) showing estimates of a decrease in the NAIRU in the United States. For those who would use Phillips-curve analysis to guide monetary policy, the time-varying NAIRU model by Gordon (1996) makes two contributions to the conduct of monetary policy in 1996. First, it quantifies in a systematic way the intuitive feeling that the NAIRU must have fallen in the 1990s, because inflation in 1996 did not accelerate as it did in 1988-90. The time-varying estimates by Gordon (1996a) lie close to the historical benchmark of 6 percent over the period between 1955 and 1996, ranging between 5.3 percent and 6.5 percent. Gordon's results also highlight the differences between NAIRU estimates stemming from alternative measures of inflation. This sensitivity could be viewed as either a weakness of NAIRU estimates or a clarion call for the Fed to take a stand as to which inflation concept it is trying to stabilize. Gordon's estimates show that in recent years there has been a downward shift in the NAIRU from around 6.2 percent in the late 1980s to approximately 5.7 percent, according to the GDP deflator, and 5.2 percent, according to the PCE deflator.

The lack of precision in NAIRU estimates is an issue raised by Staiger, Stock, and Watson (1996). They suggest that the uncertainty surrounding any estimate of NAIRU is so broad as to render the concept useless for conducting policy. Gordon (1996a) proposes an economic

criterion based on smoothness, rather than a statistical criterion, as a basis for choosing among alternative NAIRU estimates. Nevertheless, the ability to choose among NAIRU estimates does not guarantee that the chosen estimate will perform well as an inflation indicator in the future.

In sum, discussion throughout 1996 of a possible decrease in the NAIRU would have added ambiguity to any FOMC move to firm monetary policy. Observers would have asked, Is the FOMC tightening because it does not believe that the NAIRU has fallen, or because it believes the long-term health of the economy would benefit from a policy firming, even at a lower NAIRU? In such circumstances, it is not surprising that the FOMC chose to wait until it could send an unambiguous signal of its intentions. On the other hand, the FOMC could have taken evidence of unpredictable movements in the NAIRU to imply that unemployment-based models of inflation are not reliable guides for monetary policy: How can policymakers base their predictions of changes in inflation on an employment gap if no one can determine whether the gap is positive or negative?

BIASES IN THE CPI

Another issue in the debate over U.S. inflation centered on whether the consumer price index (CPI) provides a reliable measure of inflation relative to either an ideal cost-of-living index or currently available alternative measures. In fact, similar debates regarding the measurement of inflation are taking place in other major countries—especially those that have adopted quantitative inflation targets—as nearly all OECD countries move closer to price stability.⁸ Table 1 shows that the CPI measure of inflation exceeded other measures in 1995 and even more so in 1996. In addition, Table 1 illustrates that it was not clear whether inflation was increasing or decreasing in 1996; the interpretation depended on which measure was used. Consequently, the CPI faced increased scrutiny,

⁸ By 1996, the U.S. inflation rate of 3.2 percent exceeded the OECD average of 2.4 percent (excluding Mexico and Turkey).

Table 1

Alternative Measures of Inflation (In percent)

	1995	1996
Fixed Weight		
Consumer Price Index	2.7	3.2
CPI ex food and energy	3.0	2.6
Chain Type		
Personal Consumption Expenditures	2.1	2.5
PCE ex food and energy	2.3	2.0
Gross domestic purchases	2.3	2.2
Gross domestic product	2.5	2.1
Implicit Deflator		
Gross domestic product	2.5	1.8

SOURCE: Monetary Policy Report to Congress, February 26, 1997.

especially in its role as the basis for annual adjustments in entitlements such as Social Security benefits.

Because of the ubiquity of the CPI in the public's perceptions of inflation, most politicians and economists agreed that the priority ought to be on improving the CPI, not replacing it. Towards this end, the Senate Finance Committee asked a panel headed by Michael Boskin to investigate the biases in the CPI and recommend changes (Boskin Commission Report to the Senate Finance Committee, 1996). The Boskin Commission considered several sources of bias in the CPI as a measure of the cost of living and estimated that the total overstatement of inflation amounted to 1.1 percentage points per year. The range of plausible values for the bias was pegged at 0.8 to 1.6 percentage points.

The panel attributed the measurement error to three main sources: understatement of quality improvements, 0.6 percentage points; substitution bias (the tendency of consumers to change spending patterns as relative prices move), 0.4 percentage points; and switching among retailers (the increasing tendency to buy the same good at a lower price from discount outlets), 0.1 percentage point. These three biases were summed linearly, yielding the 1.1 percent estimate of the total measurement bias. As

Wynne and Sigalla (1994) note, however, it is likely that substitution and quality biases overlap, resulting in a smaller overall bias, although there has been insufficient empirical work on the problem of measurement error in the price indexes.

A controversial conclusion in the Boskin report is that the CPI has persistently and substantially overstated inflation for several decades. This claim implies that the underlying performance of the U.S. economy over the 20 years between 1976 and 1996 was far better than previously estimated. If the price element of the overall increase in national income, wages, and other components was actually lower than previously thought, the real elements must have been higher. Because the panel believes the bias to be persistent, it proposes cutting the government deficit by lowering the rate of increase in public pensions to a rate below current CPI inflation and slowing the indexation of tax brackets. These steps would cut spending and raise tax revenues.

The FOMC did not comment on the Boskin report directly, but the Humphrey-Hawkins Report in February 1997 included two important observations. First, as noted in the July 1996 monetary policy report, Chairman Greenspan recognized BLS efforts in undertaking recent technical improvements in the CPI. Such changes have reduced the reported rate of CPI inflation slightly in the last two years. Second, because it is difficult to measure inflation in an evolving economy, a variety of price indexes will be weighed in monitoring price developments.⁹

In general, uncertainty regarding the accuracy of inflation measures is likely to make the FOMC somewhat more hesitant to embark on a disinflationary drive toward price stability until it can be established just how far the economy is from price stability at the outset.

OPPORTUNISTIC DISINFLATION

Federal Reserve Governor Laurence Meyer coined the term "opportunistic disinflation" to describe a monetary policy

⁹ *Monetary Policy Report to Congress*, July 1996.

approach he observed before joining the Fed.¹⁰ This strategy is implemented when an economy is expanding and inflation is at a modest level that could be tolerated for several years or more. In this context, the opportunistic approach would have the FOMC concentrate on sustaining the expansion near the trend rate of output growth, provided that inflation remained “close” (with limited wiggle room) to a baseline level that prevailed at the beginning of the current economic expansion. This baseline rate of inflation serves as an important reference point in the opportunistic approach. If inflation were to show signs of creeping uncomfortably above the baseline rate, monetary policymakers would switch their focus from shepherding real growth to controlling inflation. Assuming that inflation is kept near the baseline rate throughout the entire economic expansion, no overt policy steps toward disinflation would be taken. In order to progress toward price stability over time, Meyer explains,

[The opportunistic approach] takes advantage of the opportunity of inevitable recessions and potential positive supply shocks to ratchet down inflation over time. Proponents of this strategy sometimes describe this approach as reducing inflation cycle to cycle or describe the economy as being one recession from price stability.¹¹

To critics, the opportunistic approach lets policymakers claim they have a strategy for achieving price stability, while it allows them never to be seen actively pushing the inflation rate downward. According to the opportunistic approach, monetary policy would spend most of the time maintaining the status quo. Activist policy steps would be taken only to help the economy recover from recessions. In this way, policymakers could avoid activist disinflationary policy steps that might be unpopular in the short run. Proponents of the opportunistic approach, in contrast, view it as a patient course of action that is likely to minimize any cost

of achieving price stability in the long run. As Governor Meyer says,

[The opportunistic approach] links short-run policy actions to long-run objectives, juggles multiple targets in a disciplined way, and would be successful in achieving the long-run [price-stability] objective over time.¹²

In a self-described exercise in reverse engineering, Orphanides and Wilcox (1996) investigate the sort of policymaker preferences that might lead to adoption of the opportunistic approach to disinflation. While they succeed in identifying a policymaker's loss function that implies the opportunistic approach, the preferences they describe appear to be ad hoc on theoretical grounds.¹³ In addition, policymakers are assumed to face a Phillips-curve inflation process in which clear announcements to the public and credible policies are assumed not to influence the costs of disinflation. Thus, political economy considerations, not economic theory, stand as the strongest rationale for the opportunistic approach. Whatever the basis, however, the opportunistic approach to disinflation could be viewed as an argument against taking immediate policy steps in 1996 to bring inflation down from 3 percent.

FOMC POLICY DIRECTIVES AND MARKET EXPECTATIONS

In this section, we summarize the FOMC directive to the open-market desk at the New York Fed following each of the eight FOMC meetings in 1996, and we compare the directives to prevailing market expectations prior to the meetings. First, however, we examine the central tendency projections of FOMC members for the near-term economic landscape in terms of nominal GDP growth, real GDP growth, CPI inflation, and the unemployment rate.¹⁴

Table 2 shows that FOMC members, like many professional forecasters, underestimated the real growth prospects for the

¹⁰ Laurence Meyer, *BIS Review* (19 September, 1996), p. 7.

¹¹ *BIS Review*, 19 September, 1996, p. 7.

¹² *BIS Review*, 19 September, 1996, p. 7.

¹³ Both the squared deviation and the absolute deviation between actual and potential output appear in the loss function, but only the squared deviation from the baseline inflation rate is included. Moreover, the model specifies only the short-run preferences of policymakers; the connection between these short-run preferences and the presumed long-run objective of price stability is not elaborated.

¹⁴ In presenting similar projections, the Deutsche Bundesbank carefully distinguishes its short-run forecasts from its long-run policy objectives by calling projected inflation “unavoidable” near-term inflation.

Table 2

1996 and 1997 Economic Forecasts from FOMC Central Tendency Projections

	Variable	July 1995	February 1996	July 1996	Actual
Projections for 1996	Nominal GDP	4 ³ / ₄ to 5 ¹ / ₂	4 ¹ / ₄ to 4 ³ / ₄	5 to 5 ¹ / ₂	5.0
	Real GDP	2 ¹ / ₄ to 2 ³ / ₄	2 to 2 ¹ / ₄	2 ¹ / ₂ to 2 ³ / ₄	3.1
	CPI	2 ⁷ / ₈ to 3 ¹ / ₄	2 ³ / ₄ to 3	3 to 3 ¹ / ₄	3.2
	Unemp. rate	5 ³ / ₄ to 6 ¹ / ₈	5 ¹ / ₂ to 5 ³ / ₄	About 5 ¹ / ₂	5.3
Projections for 1997	Nominal GDP			4 ¹ / ₄ to 5	
	Real GDP			1 ³ / ₄ to 2 ¹ / ₄	
	CPI			2 ³ / ₄ to 3	
	Unemp. rate			5 ¹ / ₂ to 5 ³ / ₄	

SOURCE FOR PROJECTIONS: Monetary Policy Reports to Congress. Unemployment rate is the fourth-quarter average.

economy in 1996, even through the July 1996 meeting. In hindsight, the February 1996 projection for real output growth was too pessimistic, but severe winter weather at the time that made it unusually difficult to distinguish between cyclical and seasonal slowdowns in output. In all three projections, the FOMC members overestimated the rate of unemployment that would hold in the fourth quarter of 1996.

With this summary of the economy's performance in 1996 and policymakers' expectations of it, we now turn to the policy directives issued at each of the FOMC meetings in 1996.

Under current operating procedures, the FOMC issues a directive to the Open Market Desk at the Federal Reserve Bank of New York immediately after each meeting, in which it specifies whether and by how much to change the degree of restraint placed on the market for bank reserves. Since February 1994, the FOMC has publicly announced changes on the day they are made. At each meeting, the Committee also decides how open it is to possible intermeeting moves toward increasing and decreasing the degree of reserves restraint. These decisions about potential actions are not made public immediately, however. They are included in the minutes of the meeting, which are released after the next meeting. Regarding intermeeting policy

actions, the FOMC indicates that it either "would" or "might" be willing to consider a move in a given direction. With either choice, an intermeeting move is possible, but "might" indicates that a move in that direction is deemed less likely. In a neutral directive, the FOMC indicates that it "would" be willing to consider intermeeting moves in either direction. In an asymmetric directive, the Committee "would" be willing to consider an intermeeting move in one direction, but only "might" consider a move in the opposite direction. Table 3 summarizes the FOMC directives following its 1996 meetings. Only the January meeting resulted in a policy change, which led to less restraint in the reserves market and a 25-basis-point decrease in the target funds rate. Several meetings in the second half of the year, however, ended with asymmetric directives with a bias towards increasing the degree of pressure on the reserves market. These directives did not result in any intermeeting policy changes. Thus, the FOMC appeared to use asymmetric directives to put its inflation concerns on record and signal to financial markets (with a disclosure lag of about six weeks, on average) that it was remaining alert and vigilant on the inflation front, rather than to signal imminent intermeeting moves.

Because the FOMC was prepared to increase the degree of restraint on the

Table 3

FOMC Policy Directives From 1996 Meetings

Date of meeting	Policy Change at Meeting	Intermeeting Stance	Dissenting Votes	
Jan. 30-31	Decreased Restraint	Neutral	None	
Mar. 26	None	Neutral	None	
May 21	None	Neutral	None	
July 2-3	None	Asymmetric (+)	Stern	
Aug. 20	None	Asymmetric (+)	Stern	
Sept. 24	None	Asymmetric (+)	Stern	
Nov. 13	None	Asymmetric (+)	None	
Dec. 17	None	Asymmetric (+)	None	
	Target Fed Funds Rate Before Meeting	Target Fed Funds Rate After Meeting	Discount Rate Before Meeting	Discount Rate After Meeting
Jan. 30-31	5.50	5.25	5.25	5.00
Mar. 26	5.25	5.25	5.00	5.00
May 21	5.25	5.25	5.00	5.00
July 2-3	5.25	5.25	5.00	5.00
Aug. 20	5.25	5.25	5.00	5.00
Sept. 24	5.25	5.25	5.00	5.00
Nov. 13	5.25	5.25	5.00	5.00
Dec. 17	5.25	5.25	5.00	5.00

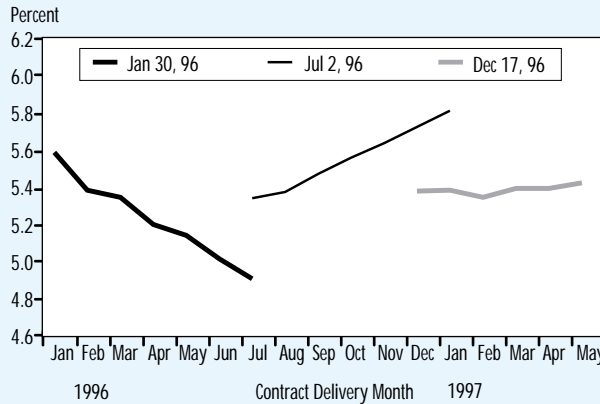
NOTE: (+) indicates a bias towards greater restraint

reserves market following the last five meetings of the year, the Committee described its own posture as “watchful waiting” (Minutes, FOMC meeting, December 17, 1996). The minutes from several meetings indicate that the FOMC believed that inflation was more likely to increase than decrease:

- The risks continue to be tilted to some extent in the direction of rising price inflation (Minutes, FOMC meeting, September 24, 1996).
- Continued pressure on resources, especially in labor markets, pointed to a likely underlying tendency toward higher inflation over the projection period (Minutes, FOMC meeting, November 13, 1996).
- The members agreed that the risks of rising inflation could not be dismissed and several continued to view slightly higher inflation as a likely if not inevitable prospect (Minutes, FOMC meeting, November 13, 1996).

Figure 3

Implied Fed Funds Forecasts from Futures Market Prior to FOMC Meetings



- Members observed that the risks on inflation still seemed to be tilted toward some rise over time (Minutes, FOMC meeting, December 17, 1996).

Yet, as of the August 20 meeting, the Committee felt there was still time for future policy steps that would come in “anticipation of greater price pressures and before they showed through to actual inflation” (Minutes, FOMC meeting, August 20, 1996).

In each of his three dissents, President Stern disapproved of the decision not to adopt a more restrictive policy. He was concerned not only about the current risk of higher inflation, but also about making immediate progress toward lowering inflation:

In [Mr. Stern’s] view, the momentum of the economy and strains on capacity in labor and some other markets raised the possibility of an acceleration of inflation that would jeopardize the economic expansion. This concern aside, Mr. Stern also believed that current circumstances were favorable for policy action to reduce inflation further. (Minutes, FOMC meeting, July 2-3, 1996.)

These policy decisions can be compared with market expectations of the future course of the federal funds rate just prior to FOMC meetings. Figure 3 illustrates the whipsaw movement of market expectations in 1996. Prior to the January meeting, the fed funds futures market exhibited fears that the expansion was losing momentum, and it predicted a sequence of rate cuts. At the time of the May meeting, fears of an economic downturn had subsided, and the funds rate was projected to remain relatively steady. Between the July and September meetings, however, an inflation scare led market participants to predict a total increase in the funds rate of about 50 basis points by early 1997. By the time of the November and December meetings, the risk of a sudden rise in inflation had diminished, and market expectations for the future path of the funds rate again flattened. Some observers claim that policy must be about right if markets are not certain whether the next appropriate change in the funds rate will be up or down. Others argue that whipsaw movements in market expectations indicate that markets believe that Federal Reserve policy decisions rely too heavily on short-run developments in the economy.

Market interest rates and term spreads reflect longer-term expectations of monetary policies. Figure 4 shows the term spreads on government securities of selected maturities throughout 1995 and 1996. Long-term bond rates increased by about 50 basis points from the beginning to the end of 1996. Part of the increase can be attributed to increased confidence in the strength of the current expansion, and part may reflect firming inflation expectations. Of course, such a decomposition of long-term interest rates is notoriously difficult, and it is hoped that the Treasury’s new indexed bonds, introduced in January 1997, can help monetary policymakers discern changes in long-run inflation expectations as bond rates change.

The increase in medium- and long-term interest rates in 1996 led some observers to claim that the bond market had already tightened credit, thereby making Fed action

less necessary. The Fed's July 1996 report to Congress cites the influence of the bond market in such a vein:

Looking forward, there are a number of reasons to expect demands to moderate and economic activity to settle back to a more sustainable pace in the months ahead. First, the bond markets have taken a turn toward restraint this year as they have responded to incoming data depicting an economy that was stronger than had been anticipated. Intermediate and longer-term interest rates have risen from 1 to 1-1/4 percentage points since January. (Monetary Policy Testimony and Report to Congress, July 1996.)

Any 'tightening' in credit markets was, moreover, partially reversed by declines in long-term rates between August and December 1996.

Goodfriend (1993) provides one way to view the notion of a bond market-driven tightening. He defines an inflation scare as a "significant long-rate rise in the absence of an aggressive funds rate tightening" (p. 8). By this definition, the economy experienced something close to a minor inflation scare in the second quarter of 1996. Hence even if the bond market can tighten credit conditions without the assistance of Fed policy actions, this manner of reining in credit demand imposes inflation risk on both lenders and borrowers. Worse yet, the Fed's

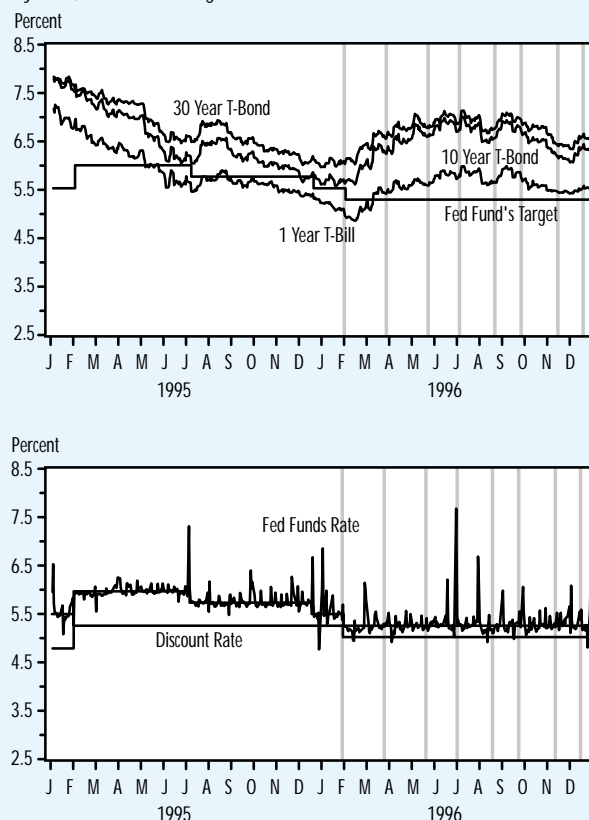
... failing to respond promptly can create a crisis of confidence that encourages the higher inflation to materialize: workers and firms ask for wage and price increases to protect themselves from higher expected costs (Goodfriend, 1993, p. 8).

In an inflation scare, the resulting increases in borrowing costs can act as an inflationary imbalance well before any increase in inflation. For this reason, it is

Figure 4

Selected Interest Rates

Daily Data, Annual Percentage Rates



NOTE: Vertical lines indicate FOMC meeting dates.

preferable for the Fed to use pre-emptive policy actions as a means of ensuring that increases in market interest rates arise primarily from increases in expected real returns, rather than from increased inflation risk premiums. Even though markets determine interest rates, the Fed has a lot to do with shaping the concerns of bondholders, especially their inflation fears.

CONCLUSIONS

The FOMC explicitly de-emphasized monetary targets as the anchor for monetary policy in July 1993. Gavin (1996) reviews tentative discussions by the FOMC about adopting inflation targets as the new anchor. In our opinion, the current period without an

explicit policy anchor may go down in U.S. monetary history as an "interregnum." Thus, in 1996 the FOMC adopted a stance of watchful waiting, not only in terms of waiting for signs of emerging inflationary imbalances in the current economic expansion, but also in waiting to embrace a new anchor for monetary policy. The prospect of policymakers settling on a new policy anchor that they can unanimously deem reliable is not likely in the near term. Yet, the U.S. economy might not achieve price stability until the Fed has a new policy anchor. As witnessed in 1996, there are many citable reasons, including those recently suggested by academic researchers, for questioning whether any given moment is the appropriate time to move from 3 percent inflation toward price stability. We believe that a new policy anchor could help ensure that such ancillary concerns do not indefinitely postpone achievement of price stability.

REFERENCES

- Akerlof, George A., William T. Dickens and George L. Perry. "The Macroeconomics of Low Inflation," *Brookings Papers on Economic Activity* (No. 1, 1996), pp. 1-59.
- Ball, Laurence. "Disinflation and the NAIRU," NBER Working Paper 5520, 1996.
- Cecchetti, Stephen G. "Measuring Short-Run Inflation for Central Bankers," this *Review* (May/June 1996), pp. 143-55.
- Diebold, Francis X., Glenn Rudebusch and Daniel E. Sichel. "Further Evidence of Business-Cycle Duration Dependence," *Business Cycles, Indicators and Forecasting*, James Stock and Mark Watson, eds., University of Chicago Press 1993, pp. 255-84.
- Dueker, Michael J., and Andreas M. Fischer. "Inflation Targeting in a Small Open Economy: Empirical Results for Switzerland," *Journal of Monetary Economics* (February 1996a), pp. 89-103.
- _____, and _____. "Are Federal Funds Rate Changes Consistent with Price Stability? Results from an Indicator Model," this *Review* (January/February 1996b), pp. 45-51.
- Durland, J. Michael and Thomas H. McCurdy. "Duration-Dependent Transitions in a Markov Model of U.S. GNP Growth," *Journal of Business and Economic Statistics* (July 1994), pp. 279-88.
- Gavin, William T. "The FOMC in 1995: A Step Closer to Inflation Targeting?" this *Review* (September/October 1996), pp. 29-47.
- Goodfriend, Marvin. "Interest Rate Policy and the Inflation Scare Problem: 1979-1992," *Quarterly Review*, Federal Reserve Bank of Richmond (Winter 1993), pp. 1-24.
- Leiderman, Leonardo, and Lars E. O. Svensson. "Introduction," *Inflation Targets*, CEPR, 1996.
- Gordon, Robert J. "The Time-Varying NAIRU and its Implications for Economic Policy," NBER Working Paper 5735, 1996a.
- _____. "Comment" on Akerlof, Dickens, and Perry, *Brookings Papers on Economic Activity* (No. 1, 1996b), pp. 60-66.
- Kim, Chang-Jin, and Charles R. Nelson. "Business Cycle Turning Points, A New Coincident Index, and Tests of Duration Dependence Based on a Dynamic Factor Model with Regime Switching," University of Washington Discussion Paper 95-17, October 1995.
- Mankiw, N. Gregory. "Comment" on Akerlof, Dickens and Perry, *Brookings Papers on Economic Activity* (No. 1, 1996), pp. 66-70.
- Martin, Peter. "Weak link in the chain," *Financial Times*, March 6, 1997, p. 12.
- Meyer, Laurence H. *BIS Review* (19 September 1996), pp. 3-7.
- Orphanides, Athanasios, and David W. Wilcox. "The Opportunistic Approach to Disinflation," manuscript, Board of Governors of the Federal Reserve System, May 1996.
- Staiger, Douglas, James H. Stock, and Mark Watson. "How Precise are Estimates of the Natural Rate of Unemployment?" NBER Working Paper 5477, 1996.
- Shapiro, Matthew D., and David W. Wilcox. "Mismeasurement in the Consumer Price Index: An Evaluation," *NBER Macroeconomics Annual* (1996).
- Taylor, John B. "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy* (December 1993), pp. 195-214.
- Tobin, James. "Inflation and Unemployment," *The American Economic Review* (March 1972), pp. 1-18.
- Wynne, Mark A. and Fiona D. Sigalla. "The Consumer Price Index," *Economic Review*, Federal Reserve Bank of Dallas (Second Quarter 1994), pp. 1-22.

VOTING MEMBERS OF THE FOMC IN 1996

The Federal Open Market Committee, the monetary policymaking body of the Federal Reserve, consists of the seven members of the Board of Governors and the twelve Reserve Bank presidents. The seven governors and the President of the New York Fed are permanent voting members. In addition, four of the other eleven Reserve Bank presidents vote on an annual, rotating basis. Reserve Bank presidents who are not voting members in a particular year continue to attend the meetings and participate in policy discussions. Members of the FOMC in 1996 are listed below:*

Alan Greenspan
Chair, Board of Governors and FOMC

William J. McDonough
President, Federal Reserve Bank of New York and Vice Chair of the FOMC

Alice Rivlin
Vice Chair, Board of Governors (starting July 1996)

Edward G. Boehne
President, Federal Reserve Bank of Philadelphia

Jerry L. Jordan
President, Federal Reserve Bank of Cleveland

Edward W. Kelley, Jr.
Member, Board of Governors

Lawrence B. Lindsey
Member, Board of Governors

Robert D. McTeer, Jr.
President, Federal Reserve Bank of Dallas

Laurence H. Meyer
Member, Board of Governors (starting May 1996)

Susan M. Phillips
Member, Board of Governors

Gary H. Stern
President, Federal Reserve Bank of Minneapolis

Janet L. Yellen
Member, Board of Governors

* The Board of Governors entered the first meeting with two vacant positions, which were not filled prior to the third and fourth meetings, respectively.

Appendix

THE M2 TARGET RANGE

Twice a year in monetary policy reports, the FOMC is required to inform Congress of the target ranges that it sets for the growth of monetary aggregates. For most of the decade prior to July 1993, the M2 aggregate, which includes currency in circulation, transactions account deposits, savings deposits, and money-market account balances, attracted considerable attention, because the FOMC on occasion cited M2's position in relation to its target cone as the impetus behind policy changes. Since that time, the FOMC has explicitly de-emphasized M2 as a policy indicator; however, as required by law, it has continued to report target ranges for M2 growth. In its January 1996 meeting, the FOMC adopted the same target growth range for 1996 that had been in force in 1995: 1 percent to 5 percent. This range was ratified at the July 1996 meeting and was provisionally set for 1997. Figure A-1 shows that actual M2 growth for 1996 came in slightly under the top of the cone that corresponds with a 5 percent growth rate.

In the January 1996 meeting, Governors Lindsey and Yellen dissented in the vote to establish this target range. They foresaw somewhat higher growth rates in M2 under appropriate monetary policy and wanted the target range to reflect those expectations. The majority, however, felt that

... [the existing] ranges could be viewed as benchmarks for money growth that would be associated with price stability, assuming behavior of velocity in line with historical experience, and a reaffirmation of those ranges would underscore the Committee's commitment to a policy of achieving price stability over the longer term (Minutes, FOMC meeting January 30-31, 1996).

Time did not resolve this difference in opinion, as the same members dissented in the July meeting on the same grounds.

The 1 percent to 5 percent growth range for M2 (with a 3 percent midpoint) would be considered a signal of the Committee's intention to achieve price stability because, from 1955 to 1989, M2 velocity neither increased nor decreased, on average. Thus 3 percent growth in M2 would imply 3 percent long-run growth in nominal GDP, which is close to the long-run growth rate of real output and would be consistent with relatively stable prices. The July 1996 Monetary Policy Report to Congress notes that, although M2 velocity increased on average in 1991 and 1992 by more than historical relationships between M2, its opportunity cost, and nominal income would have implied, M2 and nominal GDP have grown more in parallel since then. Nevertheless, "it is impossible to know whether the new parallel movement of velocity and the opportunity cost [of M2] will continue."¹

Table A-1 indicates how the growth rates of the M2 and M3 aggregates fared relative to their respective targets in 1996. For domestic nonfinancial debt, the FOMC establishes a monitoring range, rather than a formal target. M2 and domestic nonfinancial debt grew at rates that put them into the upper ends of their respective ranges, and M3 grew faster than suggested by the target range.

SWEEP ACCOUNTS

In the Monetary Policy Report to Congress in July 1996 and in February 1997, Chairman Greenspan commented on the growing use of retail sweep accounts by banks to avoid reserve requirements. Banks use sweep programs to shift funds from transaction accounts, which require reserves, to money-market deposit accounts (MMDAs) that do not. Banks have an incentive to economize on reserves holdings that do not earn interest. The proliferation of retail sweep accounts has reduced reported reserves, the monetary base, and M1. Although it is not

¹ *Monetary Policy Report to Congress*, July 1996.

possible to attribute particular increases in MMDAs to sweeps programs, the approximate divergence in 1995-96 between the growth rates of M1 and M1 plus sweep accounts is depicted in Figure A-2.

The Fed has monitored the growth of sweep accounts in recent years because of the role reserves play in the central bank's exercise of monetary policy. The continued growth of sweep programs could reduce the predictability of overall reserve demand and thus adversely affect the Federal Reserve's ability to gauge the supply of reserves in relation to its intended monetary policy stance. Moreover, there is a concern that a precipitous drop in reserves could create excessive volatility in the market for overnight funds, hampering the Fed's ability to conduct monetary policy. If the Fed wants to slow or halt the use of sweep accounts, it could consider several options. One strategy is to impose reserve requirements on money market accounts. An alternative is for the Fed to ask for congressional approval to pay banks interest on reserves.

Table A-1

FOMC Monitoring Ranges for Growth of Money and Nonfinancial Debt in 1996

Aggregate	Date at which target was set			Actual
	July 1995	Feb. 1996	July 1996	
M2	1-5	1-5	1-5	4.6
M3	2-6	2-6	2-6	6.7
Non-financial debt	3-7	3-7	3-7	5.4

SOURCE: Monetary Policy Objectives: Summary Reports of the Federal Reserve Board. Growth rates are for the period 1995Q4-1996Q4.

Figure A-1

M2 with Target Range

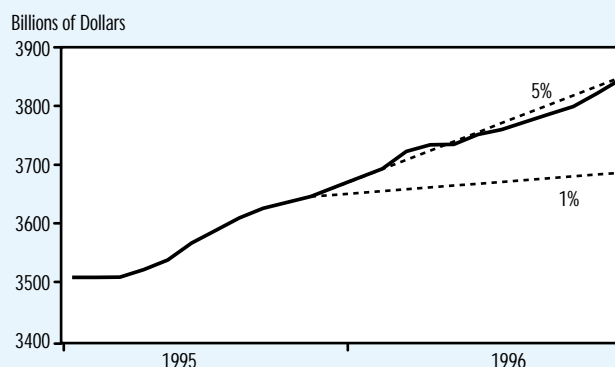


Figure A-2

M1 Growth

Percent change over one year earlier

